

WHAT IS CLAIMED IS:

1 1. Apparatus for reproducing information from a storage medium
2 comprising:
3 a motor unit operable to rotate said storage medium at any one of a plurality of
4 rotational speeds; and
5 a data control unit operatively coupled to said motor unit and operable with
6 said storage medium for accessing information contained on said storage medium;
7 said data control unit configured to receive size-indicating information relating
8 to an amount of data to be reproduced,
9 said data control unit configured to receive a request for a read operation and,
10 in response to said request, to control said motor unit to rotate said storage medium at one of
11 said rotational speeds depending on said size-indicating information.

1 2. The apparatus of claim 1 wherein said data control unit is further
2 configured to control said motor unit to operate at a first rotational speed if said size-
3 indicating information indicates a data size that is less than a predetermined value and to
4 operate at a second rotational speed if said size-indicating information indicates a data size
5 that is greater than or equal to said predetermined value, said first rotational speed being less
6 than said second rotational speed.

1 3. The apparatus of claim 2 wherein said second rotational speed is a
2 maximum rotational speed.

1 4. The apparatus of claim 1 wherein said data control unit is further
2 configured to control said motor unit to operate at a first rotational speed if said size-
3 indicating information indicates a data size that is less than or equal to a first predetermined
4 value and to operate at a second rotational speed if said size-indicating information indicates
5 a data size that is greater than said first predetermined value and less than or equal to a
6 second predetermined value, said first rotational speed being less than said second rotational
7 speed, said second rotational speed being less than a maximum rotational speed.

1 5. The apparatus of claim 1 wherein said data control unit is further
2 configured to detect a number of successive read operations wherein each read operation
3 occurs within a predetermined period of time of a preceding read operation, and to operate

4 said motor unit at a rotational speed based on the number of said successive read operations
5 detected.

1 6. The apparatus of claim 5 wherein said data control unit is further
2 configured to operate said motor unit at a maximum rotational speed if a predetermined
3 number of successive read operations is detected.

1 7. The apparatus of claim 1 wherein said data control unit is further
2 configured for data transfer operations wherein each data transfer operation includes an
3 amount of data equal to a maximum data size, and in response to a read request for an amount
4 of data greater than said maximum data size, said data control unit being operable to transfer
5 said amount of data in two or more data transfer operations, each data transfer operation of a
6 data size less than or equal to said maximum data size.

1 8. The apparatus of claim 1 wherein said data control unit is further
2 configured to:
3 access said storage medium to receive said size-indicating information;
4 to transmit said size-indicating information to a principal unit; and
5 to receive said size-indicating information from said principal unit in
6 connection with said request for a read operation.

1 9. The apparatus of claim 8 wherein said data control unit is further
2 configured for data transfer operations wherein each data transfer operation includes an
3 amount of data equal to a maximum data size, wherein said data control unit is further
4 configured to receive from said principal device a plurality of two or more requests for a read
5 operation when information to be reproduced from said storage medium is greater than said
6 maximum data size, each of said requests being for an amount of a data less than or equal to
7 said maximum data size.

1 10. Apparatus for recording information onto a storage medium
2 comprising:
3 a motor unit operable to rotate said storage medium at any one of a plurality of
4 rotational speeds; and
5 a data control unit operatively coupled to said motor unit and operable with
6 said storage medium for recording information onto said storage medium,

7 said data control unit configured to receive size-indicating information relating
8 to an amount of data to be recorded onto said storage medium,

9 said data control unit configured to receive a request for a write operation and
10 in response thereto to control said motor unit to rotate said storage medium at one of said
11 rotational speeds depending on said size-indicating information.

1 11. Apparatus for reproducing information from a storage medium
2 comprising:

3 a motor unit operable to rotate a storage medium at any one of a plurality of
4 rotational speeds; and

5 a data control unit operatively coupled to said motor unit and operable with
6 said storage medium for reproducing information from said storage medium,

7 said data control unit configured to detect a number of successive read
8 operations wherein each read operation occurs within a predetermined period of time of a
9 preceding read operation, and to rotate said storage medium at a rotational speed based on the
10 number of said successive read operations.

1 12. The apparatus of claim 11 wherein said data control unit is further
2 configured to control said motor unit at a maximum rotational speed if a predetermined
3 number of successive read operations is detected.

1 13. The apparatus of claim 11 wherein said data control unit is further
2 configured to access size-indicating information stored on said storage medium relating to an
3 amount of data to be reproduced and to transmit said size-indicating information to a
4 principal unit, said data control unit being further configured to receive said size-indicating
5 information from said principal unit in connection with a request for a read operation and to
6 rotate said storage medium at a rotational speed based on said size-indicating information.

1 14. The apparatus of claim 13 wherein said data control unit is further
2 configured to control said motor unit to operate at a first rotational speed if said size-
3 indicating information indicates a data size that is less than a predetermined value and to
4 operate at a second rotational speed greater than said first rotational speed if said size-
5 indicating information indicates a data size that is greater than or equal to said predetermined
6 value.

1 15. The apparatus of claim 13 wherein said data control unit is further
2 configured to control said motor unit to operate at a first rotational speed if said size-
3 indicating information indicates a data size that is less than or equal to a first predetermined
4 value and to operate at a second rotational speed if said size-indicating information indicates
5 a data size that is greater than said first predetermined value and less than or equal to a
6 second predetermined value, said first rotational speed being less than said second rotational
7 speed, said second rotational speed being less than a maximum rotational speed.

1 16. The apparatus of claim 11 wherein said data control unit is configured
2 for data transfer operations wherein each data transfer operation includes an amount of data
3 equal to a maximum data size, and in response to a read operation for an amount of data
4 greater than said maximum data size, said data control unit being operable to transfer said
5 amount of data in two or more data transfer operations, each data transfer operation of a data
6 size less than or equal to said maximum data size.

1 17. Apparatus for recording information onto a storage medium
2 comprising:
3 a motor unit operable to rotate a storage medium at any one of a plurality of
4 rotational speeds; and
5 a data control unit operatively coupled to said motor unit and operable with
6 said storage medium for recording information onto said storage medium,
7 said data control unit configured to detect a number of successive write
8 operations wherein each write operation occurs within a predetermined period of time of a
9 preceding write operation, and to rotate said storage medium at a rotational speed based on
10 the number of said successive write operations.

1 18. Apparatus for reproducing information from a storage medium
2 comprising:
3 rotation means for rotating said storage medium at one of a number of
4 predetermined rotation speeds;
5 read means for reading information from said storage medium; and
6 controller means operatively coupled to said read means and to said rotation
7 means for performing read operations of data from said storage medium,
8 said controller means operable to obtain information indicative of a data size,

9 said controller means operable for receiving a request of a read operation,
10 in response to said read operation, said rotation means rotating said storage
11 medium at one of said predetermined rotation speeds based on said information.

1 19. Apparatus for recording information onto a storage medium
2 comprising:
3 rotation means for rotating said storage medium at one of a number of
4 predetermined rotation speeds;
5 write means for recording information from said storage medium; and
6 controller means operatively coupled to said write means and to said rotation
7 means for performing write operations of data onto said storage medium,
8 said controller means operable to obtain information indicative of a data size,
9 said controller means operable for receiving a request of a write operation,
10 in response to said write operation, said rotation means rotating said storage
11 medium at one of said predetermined rotation speeds based on said information.

1 20. A method for reproducing information from a rotatable storage
2 medium comprising:
3 receiving a read operation request;
4 receiving size-indicating information relating to an amount of data to be
5 reproduced from said rotatable storage medium;
6 rotating said rotatable storage medium at one of a number of predetermined
7 rotation speeds based on said size-indicating information; and
8 reproducing said data from said rotatable storage medium.

1 21. The method of claim 20 further including rotating said rotatable
2 storage medium at a first rotational speed if said size-indicating information indicates a data
3 size that is less than a predetermined value and rotating said rotatable storage medium at a
4 second rotational speed if said size-indicating information indicates a data size that is greater
5 than or equal to said predetermined value, said first rotational speed being less than said
6 second rotational speed.

1 22. The method of claim 20 further including rotating said rotatable
2 storage medium at a first rotational speed if said size-indicating information indicates a data
3 size that is less than or equal to a first predetermined value and further including rotating said

4 rotatable storage medium at a second rotational speed if said size-indicating information
5 indicates a data size that is greater than said first predetermined value and less than or equal
6 to a second predetermined value, said first rotational speed being less than said second
7 rotational speed, said second rotational speed being less than a maximum rotational speed.

1 23. The method of claim 20 further including detecting a number of
2 successive read operations, wherein each read operation occurs within a predetermined period
3 of time of a preceding one of said read operations, and rotating said rotatable storage medium
4 at a rotational speed based on the number of said successive read operations detected.

1 24. The method of claim 23 further including rotating said rotatable
2 storage medium at a maximum rotational speed if a predetermined number of successive read
3 operations is detected.

1 25. The method of claim 20 further including transferring reproduced data
2 to a principle unit wherein a data transfer operation is performed with a maximum data size,
3 the method further including, in response to receiving a read operation for an amount of data
4 greater than said maximum data size, transferring reproduced data in two or more data
5 transfer operations, each data transfer operation of a data size less than or equal to said
6 maximum data size.

1 26. The method of claim 20 further including obtaining said size-
2 indicating information from said rotatable storage medium and transferring it to a principal
3 unit, receiving said read operation request from said principal unit, said read operation
4 request including said size-indicating information.

1 27. The method of claim 26 further including transferring reproduced data
2 to a principle unit wherein a data transfer operation is performed with a maximum data size,
3 the method further including receiving a plurality of two or more read operation requests in
4 order to transfer an amount of reproduced data exceeding said maximum data size, each of
5 said read operations being of a data size less than or equal to said maximum data size.

1 28. A method for recording information onto a storage medium
2 comprising:
3 receiving a write operation request, said write operation request including data
4 to be written;

- 5 receiving size-indicating information indicative of the amount of data to be
- 6 written; and
- 7 recording said data to be written including rotating said storage medium at one
- 8 of a number of predetermined rotation speeds based on said size-indicating information.

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